>>>Quick Guide to the CDF COT (Open Tracker) 24 channel ASDQ board<<<

1400 boards have been produced, burned in and will be installed
on the COT as part of the CDF upgrade

POWER / CONTROL CONNECTOR ***

See also the pinlist file that devfines the signal levels and function

Board				
Output side	10	Gnd		30mA (shared)
	9	+3V		160mA
	8	-3		200mA typ. 300mA (MAX output current)
	7	Gnd		30mA (Shared)
	6	QDR	-3 to +3	5mA (Max)
	5	Qen	0V to +3	0.1mA
	4	TrefO	-3V to +1	0.5mA (Max at -3V)
	3	TrefE	-3V to +1	0.5mA (Max at -3V)
	2	Dthr	0V to +2V	2mA (Max)
Input side	1	Att	0V to +3V	0.1mA

INPUT CONNECTOR - The input connector accomodates connection of one board to two 12 wire planes of the COT Tracker. Odd channels go to one plane and even numbered channels go to another plane.

>>>> IN1A GND IN2A GND IN3A ect....

OUTPUT CONNECTOR -
Note that the pinout of the ASDQ board are specifically designed for the COT detector at CDF. The differential mapping, chip to output connector can easily be determined by inspection of the top traces on the board that come from the ASDQ. A bonding diagram of the ASDQ is essential. The center pins of the output connector carry the calibration pulse to the board.

BLR Monitor point -- By stuffing a ~100 ohm in series to +3 from the IBLRM monitor enable point the analog monitor on channel 8 of an ASDQ can be enabled. This provides an internally regenerated copy of the signal presented to the input of the discriminator.

INPUTS -

Significant input protection is provided. A 24 ohm series resistor, on board diode and an substantial on chip input protection network should allow a channel to withstand repeated discharges of a 500pF (off board) high voltage coupling capacitor charged to above 3kV.

An unstuffed cross talk network, allows for cancellation of inverted crosstalk between odd numbered and even numbered channels. It also raised the potential for signal pickup.

Calibration pulse ----
The center pins of the output connector go to TSTN and TSTP.

A differential switched signal, 5-15ns wide, (TSTN neg going, TSTP pos. going) steers a current pulse into a charge injection circuit with a shape intended to closely mimic the long ion tail of a wire chamber with conventional gas. The TREFE is a reference for the current injected into Even numbered channels and TREFO for Odd. The total charge injected is determined by the setting of both TREFX and the width of the pulse sent by TSTN.

TSTN and TSTP require a differential signal greated than 300mV. ECL levels are possible, but an attenuation network that reduces the maximum swing by 50% and references ground is ideal. Ie. -.4V to -.8V levels

The maximum injection charge is approximately 50fC.